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ABSTRACT

This instructional packet is one of 14 school environmental education programs developed for use in the classroom and at the Dahlem Environmental Education Center (DEEC) of the Jackson Community College (Michigan). Provided in the packet are pre-trip activities, field trip activities, and post-trip activities which focus on preparations for winter in built and natural environments. Strategies for using these activities with kindergarten children are also provided. The pre-trip activities focus on differences between living and non-living things and on how plants, animals, and people prepare for winter. Two activity sheets and a letter to parents explaining the purpose of the program are included. The post-trip activities include exploring the school grounds for signs of winter preparation, creating art objects from natural objects, and making bird feeders. A list of formal and non-formal objectives and instructions for indoor and outdoor field trip activities at the DEEC are provided in a separate field trip guide. (JN)

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Nature Prepares for Winter

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Nature Prepares for Winter

A Fall Activity Packet for Kindergarten

The days are getting shorter as the northern hemisphere turns away from the sun. In the natural world the animals and plants, after years of adaptations to this seasonal cycle, are simply surviving the changes. But to us, knowing that the cold, frozen days of winter are ahead, it looks as though all nature is "preparing" for winter. The signs of migrating birds, ripe fruits and vegetables for harvest, and fresh burrows of underground animals tell us it's fall.

All of the movement outdoors makes this a good time to explore nature with your class. "Nature Prepares for Winter" is an interdisciplinary program at the Dahlem Environmental Education Center that involves both a field trip and this teacher packet. The following information will help your students sharpen their awareness of seasonal changes to appreciate the many ways plants, animals, and people prepare for winter. Back at school post-trip activities will provide you with many ideas to review the concepts of seasonal changes and to explore the outdoors.

So, bundle up and get ready to explore. We're going to discover how people prepare and nature survives the coming winter season.

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Goals and Objectives

Program Goal

Kindergarteners will become more aware of preparations for winter in the built and natural environments.

Program Objectives

Students will:

-differentiate between living and non-living things by identifying and comparing them.

-distinguish among living things by sorting plants, wild animals, pets, and humans.

-understand the concept of seasonal change by describing how spring, summer, fall, and winter are different.

-demonstrate a knowledge of preparations for winter by pointing out several examples.

-understand the similarity of plant, animal, and human preparations for winter by making comparisons.

-heighten sensory awareness by seeing, hearing, smelling, and touching.

-classify natural objects according to color, shape, and size by sorting and matching.

-increase their awareness of fall by searching for nuts, berries, fruits, animal homes, and different colored leaves.

Pre-Trip Activities

The following three activities will help you prepare your class for their upcoming field trip. Starting with the differences between living and non-living things, these activities build to an understanding of how plants, animals, and people get ready for winter.

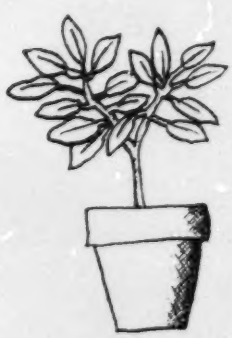
The Teacher's Seasonal Survival Guide

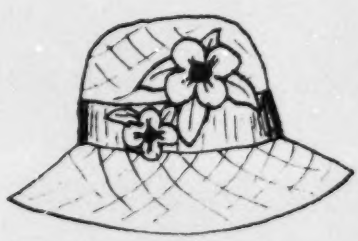
Winter poses many challenges to plants and animals. Not only is the temperature an important factor, but most of the water is frozen and food hidden. Many plants and animals have fascinating adaptations to help them survive the daily stress of a cold climate, like thin, waxy pine needles or a thicker coat of fur. Other organisms, such as wildflowers and insects, die after dispersing their overwintering seeds and eggs.

Before your students can understand how winter challenges wild plants and animals, they need to know what plants and animals need to live and grow. A good place to begin this discussion is with the difference between living and non-living things.

1. Is it Alive?

To help your class distinguish between living and non-living objects (dead and inanimate), you need a live plant, a dead plant, and a plastic plant. Using these props, ask the class which is which, and what makes them different. Help the students realize that living plants grow, respond to light, water, and are green. Dead objects once were





alive, but can no longer grow and respond. Non-living things never had this capacity; they are often manufactured. Use these categories to classify other items -- a pet, a toy, a student!

As you find classroom and outdoor examples, begin to focus the students on further classifying living things into plants and animals. How are they different? Help them realize that animals move around and eat, and plants grow in one place and absorb sun and water. In which category are people?

2. The Four Seasons

In the natural world, fall is a time of transition, a period between the growing and the dormant seasons. To us fall is one-fourth of the year marked by the return of school, football, and raking autumn leaves. This activity will reinforce the concept of seasonal change and give your students the opportunity to draw important events in each season.

Each student can make their own season wheel from Activity Sheets 1 and 2. On #1, ask them to draw seasonal events, memories, or designs in the appropriate quadrant. The next step is to cut out the 3/4 circle on #2. Then fasten them together with a brad, so the 3/4 circle exposes one season at a time. Each child can explain their season wheel to the group, reminding each other of the progression of seasons and the changes they bring.

If your class has a hard time getting started on their pictures, you may want to brainstorm lists of seasonal memories together. Here are a few:

fall	winter	spring	summer
fallen leaves	hot chocolate	rain	hot
garden	snowballs	baseball	popsicles
football	mittens	mud	swimming
sweatshirt	cold	flowers	no school
Halloween	Hanukkah	Easter	Fourth of July

3. People Prepare For Winter

To live and grow, plants need water, warmth, light, and soil. Animals need water, warmth, food, and shelter. Remember in winter, however, water freezes, food is scarce, shelters are cold, and the days are short. Survival is a challenge.

Plants and animals do one of three things in response to winter:

1) leave -- many birds and some insects migrate to warm areas,
2) die -- most small plants and insects disperse their seeds and eggs before winter, and die as the cold sets in.
3) survive -- those that remain grow thicker fur, insulate their bodies with fat, hibernate, store food, etc.

How do people survive the winter? Ask the children what their families are doing to get ready for winter. What other preparations can your students add to this list?

- Harvest garden produce.
- Can food.
- Store away summer clothes; unpack winter wear.
- Stack firewood.
- Replace screens with storm windows.
- Put on snow tires.
- Drain the swimming pool.

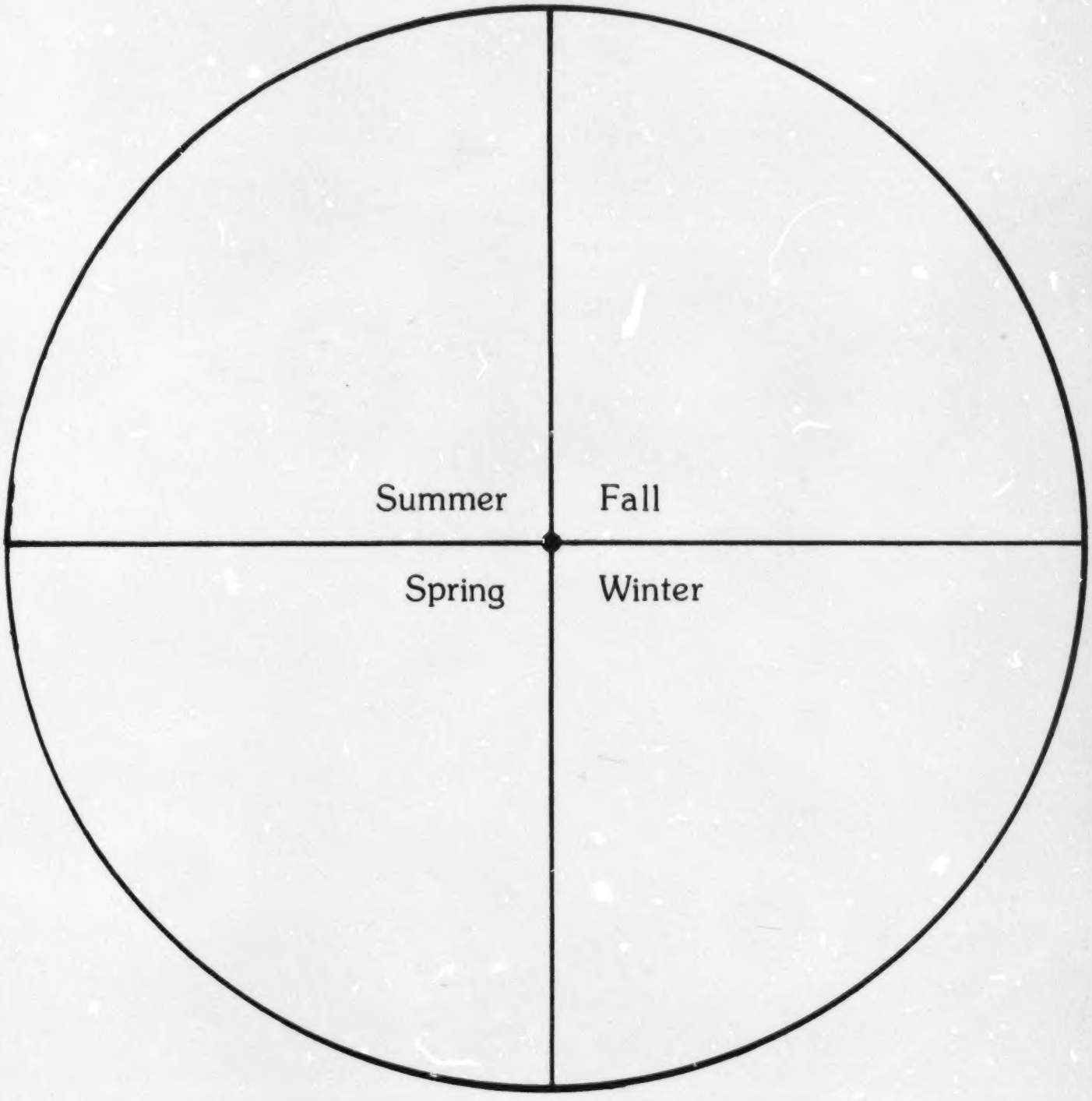
Vocabulary Words

By now your students should be familiar with these words:

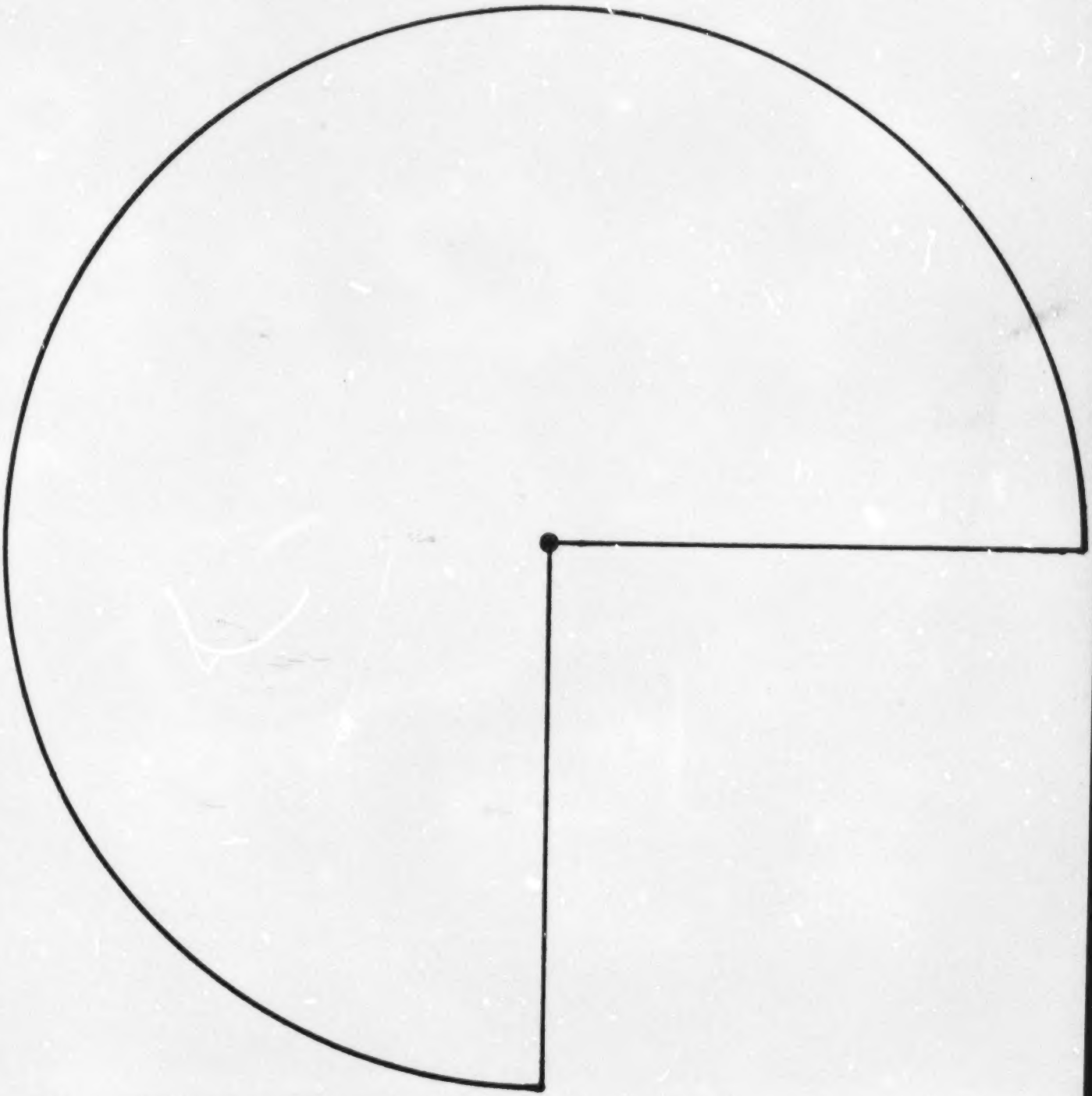
animal	seasons
fall	spring
living	winter
non-living	summer
plant	year

The following words will be introduced during the field trip. You may wish to use them in a post-trip activity.

bee	hornet
berry	leaves
bridge	nut
bud	pine cone
fruit	stream
gall	seeds
	weasel



Activity Sheet 1
The Four Seasons



Activity Sheet 2
The Four Seasons

Dear Parent,

Our kindergarten class is exploring the many ways nature prepares for winter. At school we are studying the seasons, especially what people do in the fall to prepare for winter. Soon we will go to the Dahlem Environmental Education Center to learn how animals and plants respond to the changing seasons. Back at school we will strengthen these concepts and explore the schoolyard for signs of the coming winter.

Since people are a part of nature, you can reinforce this study with your child at home. Why not invite him/her to help you with fall chores?

- raking leaves
- taking out screens and putting in storm windows
- making a fire in the fireplace
- harvesting the garden and storing food
- storing away summer clothes and unpacking winter ones
- checking the furnace, ordering fuel, or stacking wood

Try rewarding your little helper with a fall hike. Along the way you can both hunt for nuts, berries, animals, animal homes, and pretty leaves. Your yard, neighborhood, and local parks may be good places to explore.

On the day of the field trip, please listen to the weather report and help your child select the proper clothing. Warm, water-resistant clothes and sturdy footwear are recommended.

Sincerely,

Kindergarten Teacher

Field Trip

Now that your class is all prepared, it's time to go on a field trip to the Dahlem Environmental Education Center!

The trip will begin with a short indoor introduction during which your class will change a fall scene into a winter one. They'll learn about some of the ways plants and animals adapt to winter. Outdoors, your students will explore for animals, nuts, seeds, berries, galls, and leaves of different shapes and colors.

Children can practice preparing themselves for winter by dressing for the weather on the day of their field trip. How about listening to the weather report together the day before and discussing what to wear? After all, people don't have water-repellent feathers and thick fur to keep them warm and dry! We can, however, use our brains to choose clothing which will keep us comfortable.

We're looking forward to your visit. See you soon!

Post-Trip Activities

The activities in this section review and extend your field trip experience. The first two involve exploring the school grounds for signs of winter preparation; the third, fourth, and fifth, bring fall to your classroom! The last activity wraps everything up.

1. Exploring the Schoolyard

Keeping the discoveries of the field trip fresh in your minds, search the school site for plants and animals getting ready for winter. You and your students will probably find treasures you never saw before! Here are some ideas:

- Drag a sock through the weeds -- can you find hitch-hiking seeds?
- Where are galls and tree buds hiding?
- Listen carefully for noisy flocks of blackbirds preparing to fly south.
- Are there any rosettes of dandelion leaves awaiting spring?
- Don't forget to look carefully for animals and animal homes!

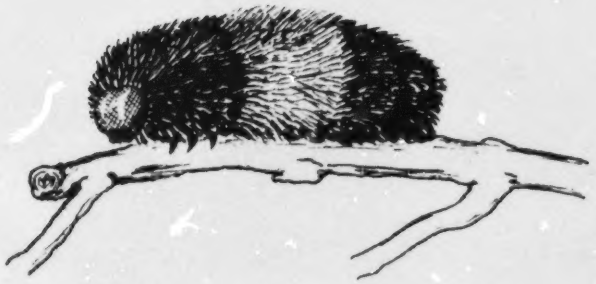
Returning to these spots in the winter and spring will provide a good comparison to your fall school site study.

2. The Great Bear Hunt

Fall, more than any other season, is the time of the bear. You can find the bears everywhere -- crossing roads, traveling on the sidewalk, and hiding in your kindergarteners' pockets! There couldn't be a better time of year to explore the life cycle of the Woollybear.

The popular critter overwinters as a caterpillar, spins its cocoon in the spring, and enters the adult world as an Isabella moth in late May. Introduce your class to the life cycle of a moth -- egg, larva (caterpillar), pupa (cocoon), and adult (moth). Then take them outdoors to hunt for bears -- Woollybears that is!

Carry with you some unbreakable containers for the bears -- clean pill jars will do. Remind the class that they don't have to keep all the bears they find! Because they are wild creatures, only a few bears should be collected to study -- the rest should be released.



Folklore has it that the wider the middle band on the Woollybear, the harder the winter will be. What type of winter do your bears forecast? Do all bears have the same measurements?

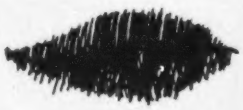
Back in the classroom, your students can transfer their bears to a few glass jars. The jars should be large enough to accommodate a few branches onto which an emerging moth can crawl to dry and spread its wings. Keep the bears constantly supplied with fresh grass. Because the grass will remain fresher in an airtight container and the bears require little oxygen, it is not necessary to poke holes in the jar lids.

Supply your bears with the moisture they need by spraying the inside of the jar occasionally with water.

The bears in the jars should go outside your window when the nights become cold so the caterpillars can adjust properly to the season. While these insects "hibernate", they won't need food or moisture. If kept indoors, the bears may form cocoons too early, dry out, and die. With the coming of warm spring weather, bring the jars indoors.

Watch carefully as your bears spin cocoons and transform into moths. When the moths' wings are outstretched and dry, it's time to set your Isabella moths free!

Children might enjoy making Woollybears out of teasel heads and toothpicks. Chenille pipe cleaners also make good bears if you use the type which vary in thickness. These can be found in craft stores.



3. Leaf and Seed Art

A study of fall just wouldn't be complete without an art project. Why not try one of these leafy activities?

Carbon Prints. Place a leaf, vein side up, on a pad of newspaper. Cover the leaf, first with a sheet of carbon paper (carbon side down), and then with a thin layer of newspaper. Press with a medium hot iron. Place the darkened leaf on a sheet of white paper. Cover with clean newspaper and press. Remove leaf.

Clay Prints. Roll a leaf, vein side down, into a flattened out piece of clay. Remove the leaf.

Contact Paper Mats. Sandwich leaves between two pieces of clear contact paper -- or between a piece of clear contact paper and a piece of colored construction paper.

Crayon Rubbing. Place a leaf, vein side up, on a table. Cover the leaf with paper. Careful coloring will reveal the veins and margins of the leaf.

Ink Prints. Glue a leaf, vein side up, to a small piece of cardboard. When the leaf is dry, paint it (but not the paper) with a thin coat of poster paint. Press the cardboard onto a sheet of drawing paper. Remove the leaf carefully.

Leaf Mosaics. Make a pencil drawing on a piece of paper. Then collect an assortment of different colored leaves. "Color" the picture by pasting on pieces of leaves.

Leaf People. Press a variety of different sized, colored, and shaped leaves. A few days later glue each onto a separate piece of paper. Crayon heads, arms, legs, and feet onto these Leaf People.

Plaster Casts. Place a leaf, vein side up, on the bottom of a disposable pie tin. Fill the tin with plaster of Paris. Insert a paper clip halfway near one edge. For a white cast, simply peel the leaf away. For a colored cast, paint the surrounding plaster first.

Sponge Stencils. Weight a leaf, either side down, on a piece of drawing paper. Dab one end of a moist sponge into a dish of poster paint. Stroke the sponge over the leaf's edges and onto the paper. Remove leaf carefully.

Don't forget to try your luck with these "seedy" activities.

Bean-Layering. Glass jars filled with layers of beans are quite attractive. Spoon in lentils, kidney beans, black-eyed peas, split peas, etc. To prevent spills, screw the lid on tightly. Make bean bags with the leftovers!

Nature Critters. Make critters out of pine cones or teasel heads. Make eyes, ears, noses, tails, and feet out of berries, milkweed fluff, acorn tops, etc.

Seed Mosaics. Sketch out a design on heavy paper, a leftover container lid, or a piece of cardboard. One section at a time, glue the seeds on. Try rice, sesame seeds, sunflower seeds, birdseed, spice seeds, and seeds you find outdoors. Instead of glue, press the seeds into a slab of clay.

For more crafty ideas ask your school art specialist and look for the craft books listed in the resource section of this packet.

4. Fall Memories

This activity will encourage your students' imagination and creativity. After all this talk of fall, they must have enough ideas for a wonderful story!

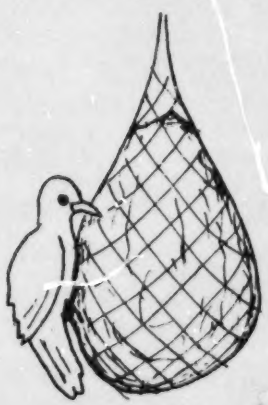
As your students take turns dictating a fall experience story, write it on a large piece of paper. If they need to warm-up first, you could read a fall story listed in the references or encourage them to share their field trip memories.

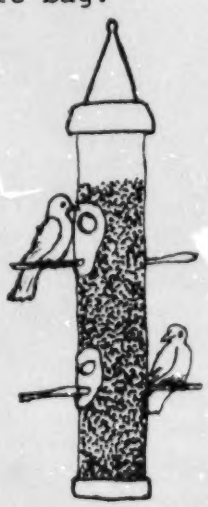
Be sure to leave space for your artists to add their visions! To preserve your story for the seasons to come, fasten the pages together and add a cover. Why not add winter, spring, and summer volumes and make a complete set?

5. For the Birds

Birds that do not migrate south often need help finding food in the winter. Many of the birds are seed eaters and will eagerly visit a bird feeder that is consistently filled with seed. During a storm the birds may depend on your feeder, so once you start it is important to keep feeding them until spring. Put a birdfeeder outside your classroom or hall window, near a tree if possible. Once they find your feast, a variety of winter birds may visit, providing you with many teaching possibilities.

Your class can make simple feeders to take home by mixing cornmeal and peanut butter, covering a pine cone with the mixture, and then rolling it in birdseed. Another feeder can be made by placing solid suet (animal fat) in a mesh sack like an onion or fruit bag.





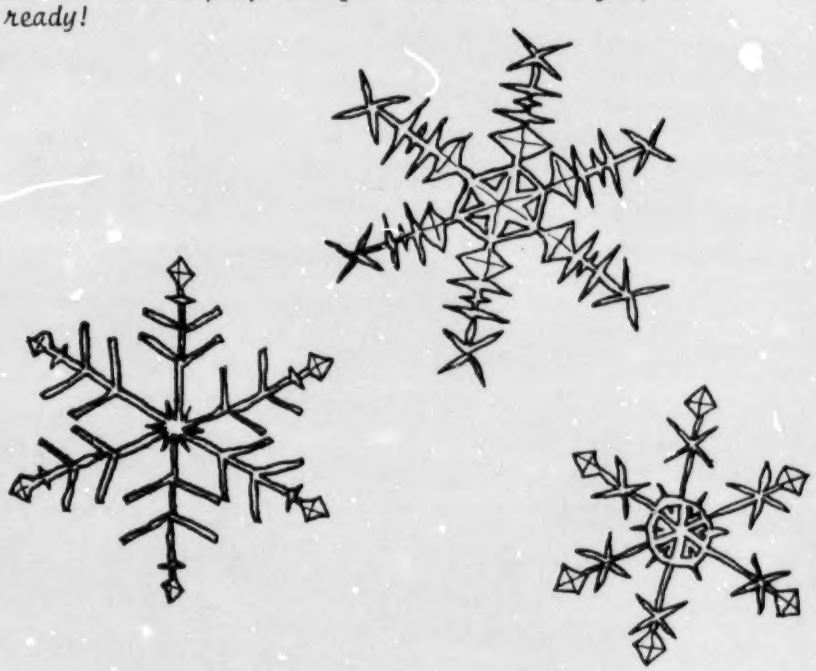
6. Wrapping It Up

This activity should tie the pre-trip, field trip, and post-trip together and wrap everything up. Using Activity Sheet 3, your class can match some of the ways that people and animals survive winter -- finding warm homes, storing food, and wearing heavy winter coats.

Do your students remember how these animals survive winter?

Mosquitoes - adults die; eggs overwinter
Woollybears - hibernate as caterpillars
Blackbirds - migrate south
Peacock Flies - pupae remain inside goldenrod ball galls
Groundhogs - dig homes and hibernate
Weasels - change from brown to white
Bald-Faced Hornets - workers and drones die, the fertilized queen overwinters underneath the ground
Chipmunks - eat stored nuts and sleep through storms
Honeybees - store honey so they can eat all winter
Raccoons - grow thick fur

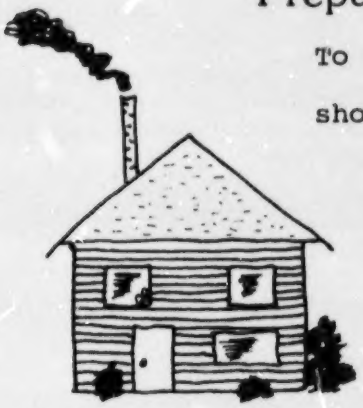
Congratulations! You did it -- you helped your students to explore fall and learn all about how nature prepares for winter. Good job, now it's your turn to get ready!

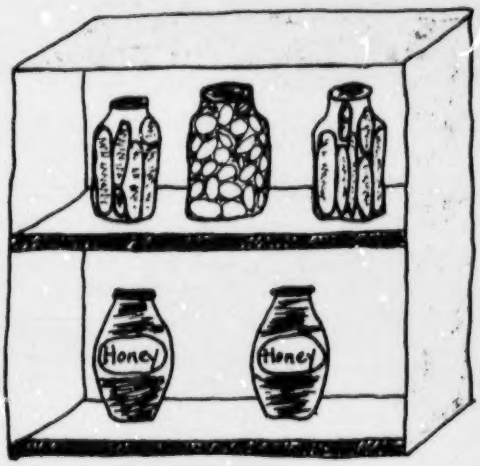


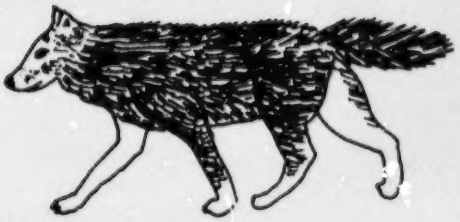
Name _____

Preparing for Winter

To the teacher:
Have your children draw lines to match pictures showing similar preparations between animals and people.







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* These books are available at the Jackson District Library. Similar titles may be found at the Library's 16 branches under the same Dewey Decimal numbers.

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AT REMC...

The Jackson County Intermedicate School District's Regional Educational Media Center has the following:

Motion Pictures:

"Animals Behavior -- Fall"	MP	572
"Animal Behavior -- Winter"	MP	569
"Autumn is an Adventure"	MP	70
"Autumn on the Farm"	MP	547
"Fall is Here"	MP	400
"Farms in the Fall"	MP	404
"Farms in the Winter"	MP	407

"The Monarch Butterfly Story" MP 1882
"Winter is Here" MP 1740

Filmstrip/Cassette Sets:

"Seeing the Seasons Change" SE 1338.1
four filmstrips and cassettes:

- Spring
- Fall
- Winter
- Summer

"Environmental Awareness" SE 447
five filmstrips and cassettes:

- Awareness of Forest and Field
- Awareness in the City
- Colors in Nature
- Patterns in Nature
- Textures in Nature

NATURE PREPARES FOR WINTER

Kindergarten Field Trip

Formal Objectives:

Students will:

-demonstrate a knowledge of fall preparations for winter by pointing out several examples.

-state several similarities between human and natural preparations for winter by giving examples of them.

-classify natural objects according to color, shape, and size by sorting and matching.

-heighten sensory awareness by seeing, hearing, smelling, and touching.

Non-formal Objectives:

Students will be given the opportunity to:

-see how plants, animals, and people prepare for the cold season.

-role play a preparor.

-appreciate fall.

-understand that they, too, are a part of the natural cycles.

Indoor:

Welcome the group. Introduce yourself and the Dahlem Center, and explain why they are here.

1. Review seasonal change with the group. They should already know this is fall, winter is coming, and that plants, animals, and people are preparing for winter.

2. Stress preparations with a picture of fall, and as you talk, create a picture of winter.

1) leaves fall off trees, and leaves buds-tiny packages of new leaves for next year

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2) plants that die in winter send their seeds away

3) some animals wait out the cold in a gall (parent laid an egg and died)

4) some animals store food and hibernate

5) some animals fly away

6) some change color--better fur--survive--weasel

People stay here and prepare by:

1) storing food

2) buying warm clothes

3) turning on the heat

3. Ask if they understand how clothes keep us warm. Fluffy clothes trap air in the spaces. That air helps keep us warm. A mitten keeps our hand warm the same way fur keeps an animal warm.

   Take four ice cubes, a mitten, and the short-tail weasel skin, and ask for two volunteers. Have one hold the skin on a flat palm, and the other wear the mitten. Then put an ice cube in each of their hands. Which hand feels cold? The air trapped by the fur and the wool keeps your hands warm. Most animals grow a thicker winter coat--even dogs and cats! Do we?

4. Remind them that while we are outside we'll be looking for signs that nature is preparing for winter, but we won't be taking anything home!

Outdoors:

You can take a wide variety of trails for this program. The Special Needs Trail covers a short distance but includes a wealth of things to see. The creek, the catalpa trees, burdock and crayfish castles are near the bridge. If time permits, kindergarteners always enjoy seeing the long boardwalk and pond.

1. While outside, encourage the group to use all of their senses to discover the world, and to find signs of preparation. Specifically point out textures, smells, colors, shapes, and sounds.

2. Look for these signs of preparation:
   fallen leaves
   buds
   migrating/flocking birds
   chipmunk holes
   nut scraps from squirrels or chipmunks

seeds traveling around
insect galls or cocoons
animal food (fruits and nuts)
animals at the pond
animals under a log
rosette (dandelion, mullein)

3. At an appropiate time let the children play plants and animals preparing for fall! How about:
a chipmunk searching for seeds
pears falling off the tree
a woodchuck digging a burrow
a milkweed seed blowing around
a sticky seed clinging on someone's pants (partner's)
--use your imagination!

4. Toward the end of the walk, circle the children around and re-emphasize that we, too, prepare for winter because we are also a part of nature. Ask them what they liked about the field trip, or what they remember seeing, etc. and invite them to return with their families to see nature in winter!